



**NEXCOM International Co., Ltd.**

**Network and Communication Solutions**

**Network Security Appliance**

**DNA 1110**

User Manual

# CONTENTS

## Preface

Copyright .....	iv
Disclaimer .....	iv
Acknowledgements .....	iv
Regulatory Compliance Statements .....	iv
Declaration of Conformity .....	iv
RoHS Compliance .....	v
Warranty and RMA .....	vi
Safety Information .....	vii
Installation Recommendations .....	vii
Safety Precautions .....	viii
Technical Support and Assistance .....	ix
Conventions Used in this Manual .....	ix
Global Service Contact Information .....	x
Package Contents .....	xii
Ordering Information .....	xiii

## Chapter 1: Product Introduction

Overview .....	1
Key Features .....	1
Hardware Specifications .....	2
Getting to Know DNA 1110 .....	5
Front Panel .....	5
Rear Panel .....	6

## Chapter 2: Jumpers And Connectors

Before You Begin .....	7
Precautions .....	7
Jumper Settings .....	8
Locations of the Jumpers and Connectors .....	9
DNB 1110 .....	9
Jumpers .....	10
Clear CMOS Select .....	10
CF Card Master/Slave Select .....	10
H/W Reset .....	11
Power Type Select .....	11
Connectors Pin Definitions .....	12
External I/O Interface .....	12
VGA Connector .....	12
12V DC-in .....	12
Power Switch .....	13
RJ45 Type Console Port (RS232 only) .....	13
USB Ports .....	14
Copper LAN Port (CON1A) .....	14
Copper LAN Port (CON1B) .....	15
Copper LAN Port (CON1C) .....	15
Copper LAN Port (CON1D) .....	16

Internal Connectors.....	17
SATAII Port (J1).....	17
SATAII Port (J3).....	17
SATA Power Connector .....	18
SATA DOM Power Connector .....	18
Digital I/O Connector .....	19
COM2 Connector (RS232).....	19
CompactFlash .....	20
USB Connector .....	21
Parallel Connector.....	21
PS/2 Keyboard/Mouse Connector .....	22
GAL Programming Connector .....	22
System Fan Connector .....	23
PCI Slot.....	23
Mini PCI Slot .....	25

## Chapter 3: System Setup

Removing the Chassis Cover .....	27
Installing a DIMM.....	28
Installing a CompactFlash Card .....	30
Installing a SATA Hard Drive .....	32
Installing a PCI Card.....	37
Installing a Mini PCI Card.....	40
Installing the System into a Rack Cabinet .....	42
Rackmount Instructions .....	42

## Chapter 4: BIOS Setup

About BIOS Setup.....	44
When to Configure the BIOS.....	44
Default Configuration .....	45

Entering Setup .....	45
Legends.....	45
BIOS Setup Utility.....	46
Main .....	46
Advanced .....	47
PCIPnP.....	57
Boot .....	58
Security .....	61
Chipset.....	62
Exit.....	64

## Appendix A: Watchdog Timer

Watchdog Timer Setting .....	65
CRFC6 (Default 0x00) .....	65
Watch Dog Sample Code .....	66

## Appendix B: Bypass Specifications

BTCR - Bypass Timer Configuration Register = 0XF2 .....	67
BCSR - Bypass Control Status Register = 0XF3 BIT7, BIT6.....	67
Bypass Control Register Bit Definitions .....	68
Bypass Timer Configuration Register .....	68
Bypass Control Status Register (Segment 1 only).....	69
Bypass Mode Table .....	69

# PREFACE

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## Acknowledgements

DNA 1110 is a trademark of NEXCOM International Co., Ltd. All other product names mentioned herein are registered trademarks of their respective owners.

## Regulatory Compliance Statements

This section provides the FCC compliance statement for Class B devices and describes how to keep the system CE compliant.

## Declaration of Conformity

### FCC

This equipment has been tested and verified to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

### CE

The product(s) described in this manual complies with all applicable European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

## RoHS Compliance



### **NEXCOM RoHS Environmental Policy and Status Update**

NEXCOM is a global citizen for building the digital infrastructure. We are committed to providing green products and services, which are compliant with European Union

RoHS (Restriction on Use of Hazardous Substance in Electronic Equipment) directive 2002/95/EU, to be your trusted green partner and to protect our environment.

RoHS restricts the use of Lead (Pb) < 0.1% or 1,000ppm, Mercury (Hg) < 0.1% or 1,000ppm, Cadmium (Cd) < 0.01% or 100ppm, Hexavalent Chromium (Cr6+) < 0.1% or 1,000ppm, Polybrominated biphenyls (PBB) < 0.1% or 1,000ppm, and Polybrominated diphenyl Ethers (PBDE) < 0.1% or 1,000ppm.

In order to meet the RoHS compliant directives, NEXCOM has established an engineering and manufacturing task force in to implement the introduction of green products. The task force will ensure that we follow the standard NEXCOM development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NEXCOM are renowned.

The model selection criteria will be based on market demand. Vendors and suppliers will ensure that all designed components will be RoHS compliant.

### **How to recognize NEXCOM RoHS Products?**

For existing products where there are non-RoHS and RoHS versions, the suffix "(LF)" will be added to the compliant product name.

All new product models launched after January 2006 will be RoHS compliant. They will use the usual NEXCOM naming convention.

# Warranty and RMA

## NEXCOM Warranty Period

NEXCOM manufactures products that are new or equivalent to new in accordance with industry standard. NEXCOM warrants that products will be free from defect in material and workmanship for 2 years, beginning on the date of invoice by NEXCOM. HCP series products (Blade Server) which are manufactured by NEXCOM are covered by a three year warranty period.

## NEXCOM Return Merchandise Authorization (RMA)

- ✘ Customers shall enclose the “NEXCOM RMA Service Form” with the returned packages.
- ✘ Customers must collect all the information about the problems encountered and note anything abnormal or, print out any on-screen messages, and describe the problems on the “NEXCOM RMA Service Form” for the RMA number apply process.
- ✘ Customers can send back the faulty products with or without accessories (manuals, cable, etc.) and any components from the card, such as CPU and RAM. If the components were suspected as part of the problems, please note clearly which components are included. Otherwise, NEXCOM is not responsible for the devices/parts.
- ✘ Customers are responsible for the safe packaging of defective products, making sure it is durable enough to be resistant against further damage and deterioration during transportation. In case of damages occurred during transportation, the repair is treated as “Out of Warranty.”

- ✘ Any products returned by NEXCOM to other locations besides the customers’ site will bear an extra charge and will be billed to the customer.

## Repair Service Charges for Out-of-Warranty Products

NEXCOM will charge for out-of-warranty products in two categories, one is basic diagnostic fee and another is component (product) fee.

### System Level

- ✘ Component fee: NEXCOM will only charge for main components such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistor, capacitor.
- ✘ Items will be replaced with NEXCOM products if the original one cannot be repaired. Ex: motherboard, power supply, etc.
- ✘ Replace with 3rd party products if needed.
- ✘ If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

### Board Level

- ✘ Component fee: NEXCOM will only charge for main components, such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistors, capacitors.
- ✘ If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

## Warnings

Read and adhere to all warnings, cautions, and notices in this guide and the documentation supplied with the chassis, power supply, and accessory modules. If the instructions for the chassis and power supply are inconsistent with these instructions or the instructions for accessory modules, contact the supplier to find out how you can ensure that your computer meets safety and regulatory requirements.

## Cautions

Electrostatic discharge (ESD) can damage system components. Do the described procedures only at an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the computer chassis.

## Safety Information

Before installing and using the device, note the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Follow all warnings and cautions in this manual.
- When replacing parts, ensure that your service technician uses parts specified by the manufacturer.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- The load of the system unit does not solely rely for support from the rackmounts located on the sides. Firm support from the bottom is highly necessary in order to provide balance stability.
- The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

## Installation Recommendations

Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

- A Philips screwdriver
- A flat-tipped screwdriver
- A grounding strap
- An anti-static pad

Using your fingers can disconnect most of the connections. It is recommended that you do not use needlenose pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

## Safety Precautions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a stable surface during installation. Dropping it or letting it fall may cause damage.
7. Do not leave this equipment in either an unconditioned environment or in a above 40°C storage temperature as this may damage the equipment.
8. The openings on the enclosure are for air convection to protect the equipment from overheating. DO NOT COVER THE OPENINGS.
9. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
10. Place the power cord in a way so that people will not step on it. Do not place anything on top of the power cord. Use a power cord that has been approved for use with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.
11. All cautions and warnings on the equipment should be noted.
12. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
13. Never pour any liquid into an opening. This may cause fire or electrical shock.
14. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
15. If one of the following situations arises, get the equipment checked by service personnel:
  - a. The power cord or plug is damaged.
  - b. Liquid has penetrated into the equipment.
  - c. The equipment has been exposed to moisture.
  - d. The equipment does not work well, or you cannot get it to work according to the user's manual.
  - e. The equipment has been dropped and damaged.
  - f. The equipment has obvious signs of breakage.
16. Do not place heavy objects on the equipment.
17. The unit uses a three-wire ground cable which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.
18. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
19. The computer is provided with CD drives that comply with the appropriate safety standards including IEC 60825.



## Technical Support and Assistance

1. For the most updated information of NEXCOM products, visit NEXCOM's website at [www.nexcom.com](http://www.nexcom.com).
2. For technical issues that require contacting our technical support team or sales representative, please have the following information ready before calling:
  - Product name and serial number
  - Detailed information of the peripheral devices
  - Detailed information of the installed software (operating system, version, application software, etc.)
  - A complete description of the problem
  - The exact wordings of the error messages

### Warning!

1. Handling the unit: carry the unit with both hands and handle it with care.
2. Maintenance: to keep the unit clean, use only approved cleaning products or clean with a dry cloth.
3. CompactFlash: Turn off the unit's power before inserting or removing a CompactFlash storage card.

## Conventions Used in this Manual



**Warning:** Information about certain situations, which if not observed, can cause personal injury. This will prevent injury to yourself when performing a task.



**Caution:** Information to avoid damaging components or losing data.



**Note:** Provides additional information to complete a task easily.

# Global Service Contact Information

## Headquarters

### Taiwan

18F, No. 716, Chung-Cheng Rd. Chung-Ho City,  
Taipei County 235, Taiwan, R.O.C.  
Tel: +886-2-8228-0606  
Fax: +886-2-8228-0501  
<http://www.nexcom.com.tw>

### USA

3758 Spinnaker Court,  
Fremont, CA 94538, USA  
Tel: +1-510-656-2248  
Fax: +1-510-656-2158  
<http://www.nexcom.com>

### France

Z.I. des Amandiers, 17, Rue des entrepreneurs  
78420 Carrières sur Seine, France  
Tel: +33 (0)1 71 51 10 20  
Fax: +33 (0)1 71 51 10 21  
<http://www.nexcom.eu>

### Germany

Leopoldstrase Business Centre, Leopoldstrase 244 80807  
Munich, Germany  
Tel: +49-89-208039-278  
Fax: +49-89-208039-279  
<http://www.nexcom.eu>

### Italy

Via Gaudenzio Ferrari 29, 21047 Saronno (VA) Italia  
Tel: +39 02 9628 0333  
Fax: +39 02 9619 8846  
<http://www.nexcom.eu>

### United Kingdom

10 Vincent Avenue, Crownhill Business Centre  
Milton Keynes, Buckinghamshire, MK8 0AB  
United Kingdom  
Tel: +44-1908-267121  
Fax: +44-1908-262042  
<http://www.nexcom.eu>

### **China-Beijing**

Room 301, Block E, Power Creative Building, No. 1  
Shangdi East Rd. Haidian Dist., Beijing, 100085, China  
Tel: +86-10-5885-6655  
Fax: +86-10-5885-1066  
<http://www.nexcom.cn>

### **China-Shanghai Office**

Room 1505, Greenland He Chuang Building, No. 450  
Caoyang Rd. Shanghai, 200063, China  
Tel: +86-21-6150-8008  
Fax: +86-21-3251-6358  
<http://www.nexcom.cn>

### **China-Nanjing Office**

Hall C, Block 17, TianXingCuiLang,  
No. 49 Yunnan North Rd.  
Nanjing, 210018, China  
Tel: +86-25-8315-3486  
Fax: +86-25-8315-3489  
<http://www.nexcom.cn>

### **China-Shenzhen Office**

Western Room 708, Block 210, Tairan Industry & Trading Place,  
Futian Area, Shenzhen, China 518040  
TEL: +86-755-833 27203  
FAX: +86-755-833 27213  
<http://www.nexcom.cn>

### **Japan**

9F, Tamachi Hara Bldg.,  
4-11-5, Shiba Minato-ku Tokyo,  
Japan 108-0014  
Tel: +81-3-5419-7830  
Fax: +81-3-5419-7832  
<http://www.nexcom-jp.com>

# PACKAGE CONTENTS

Before continuing, verify that the DNA 1110 package that you received is complete. Your package should have all the items listed in the following table.

Item	P/N	Name	Description	Qty
1	19L00111000X0	DNA 1110		1
2	50311F0107X00	I HEAD BOLTS SCREW LONG	I3x14 AXISx10mm SCREWx4mm (BLACK)	4
3	5044440031X00	RUBBER FOOT KANG YANG:RF20-5-4P	19.8x18x5.0mm	4
4	5060100012X00	HIGH-END DAMPER INSIDE DIA. KITAGAWA:HED-1111-ALS20ABK	11.1mm H:10.8mm TPS (BLACK)	4
5	60177A0194X00	DNA 1110 QUICK REFERENCE GUIDE VER:A	KRAMER	1
6	6023309081X00	CABLE EDI:232091081804-RS	COM PORT. DB9 FEMALE TO RJ45 8P8C L:1800mm	1
7	60233ATA29X00	SATA CABLE TC&C:T107048070933-5	SATA 7P 180D TO SATA 7P 90D L:70mm	1
8	60233PW187X00	SATA POWER CABLE TC&C:T105048150923-2	SATA 15P MOLDING 90D TO HOUSING 4P PIT:2.54mm L:60mm	1
9	602DCD0250X00	DNA 1110 CD DRIVER VER:1.0	JCL	1
10	7400045001X00	POWER ADAPTER ACE:ADGP45W401-N101A	45W FOR DNA1110	1
11	5043330272X00	TP10 CF BRACKET CHYUAN-JYH:L10Z361	46.4x49.2x8.8mm 301 STAINLESS STEEL T:0.5mm	1

# ORDERING INFORMATION

The following provides ordering information for DNA 1110.

- **Barebone**

- DNA 1110 (P/N: 10L00111000X0)**

- Supports Intel® Atom™ 410 Single Core 1.66GHz processor, 1 DDR2 memory slot, 4 Gigabit LAN ports with one bypass, CompactFlash socket, VGA, USB port, one Mini-PCI slot, one PCI expansion slot.

- **Barebone**

- DNA 1110A (P/N: 10L00111001X0)**

- Supports Intel® Atom™ 510 Dual Core 1.66GHz processors, 1 DDR2 memory slot, 4 Gigabit LAN ports with one bypass, CompactFlash socket, VGA, USB port, one Mini-PCI slot, one PCI expansion slot.

# CHAPTER 1: PRODUCT INTRODUCTION

## Overview



Front



Rear

### Key Features

- Desktop Network Platform
- Intel® Atom™ 510 Dual Core / 410 Single Core 1.66GHz processors
- Supports one DDR2 667MHz memory up to 2GB
- Onboard PCIe GbE LAN x 4
- Supports LAN Bypass
- 2 USB ports
- 2 SATA interfaces
- 1 PCI expansion (32-bit/33 MHz)
- Onboard CompactFlash socket
- Internal 2.5" x 1 HDD Bay

## Hardware Specifications

### Main Board

- DNB 1110
- Intel® Atom™ 510 Dual Core / 410 Single Core 1.66GHz processors
- Intel® ICH8M chipset

### Main Memory

- 1 x 240-pin DDR2 667MHz DIMM socket
- Up to 2GB Non-ECC DDR2 SDRAM

### Expansion

- One full height / half size PCI card (supports 5W)
- One Mini-PCI slot (supports 2.5W)

### I/O Interface - Front

- Power status LED
- HDD status LED
- LAN status LED

### I/O Interface - Rear

- 1 x power button
- 1 x RJ45 type for Console port
- 4 x Copper LAN ports
- 2 x USB 2.0 ports
- 1 x PCI expansion slot

### LAN Features

- Controller
  - Intel 82574 (from ICH8M via PCI-E x1)
- Link speed
  - 10/100/1000
- Media type
  - 4 RJ45 LAN ports
    - Left: Activity LED blinks Yellow
    - Right: Link LED lights Green
- Bypass
  - One segment (single latch bypass)
- PXE Boot
  - The right side of 82574L

### Storage

- 1 x onboard CompactFlash socket
- 1 x internal 2.5" HDD drive bay

## RTC

- Controller
  - Built-in controller
- Backup battery
  - Lithium battery

## System Management

- Watchdog
  - Watchdog timeout is programmable by software from 1 second/min. to 256 sec. (from Winbond W83627 Super I/O)
- System Monitor
  - Monitors voltages (system temperature sensor, monitors system voltage, monitors battery voltage, and monitors fan speed of system)
  - 2Kbit serial EEPROM connected to SMBUS to store system information such as serial number, MAC address certificates, etc.

## Internal I/O

- Serial port
  - One 2x5 2.0mm box header (COM2)
- USB ports
  - Two USB connectors (connected to the rear panel)
- Printer port
  - One 2x13 2.0mm box header (reserved for LCM module)
- Digital I/O
  - GPIO from Super IO, 2x8 2.0mm 4-in 4-out pin header

## Power

- Supplied voltages
  - AC 100V – 240V
  - Supports up to 45W power adaptor
- Power mode
  - AT mode, ATX mode (default)  
Use a jumper to change the setting. The BIOS can auto detect the power mode status.

## BIOS

- Type
  - AMI BIOS
- Flash ROM
  - 8Mbit (SPI)
- Power Management
  - Power voltage monitoring
- Version Management
  - Shows the current BIOS version
- PXE
  - 82574L

## Dimensions

- Chassis dimension: 272mm x 195mm x 44mm
- Carton dimension: 430mm x 300mm x 170mm



## Software

- Standard OS
  - Windows XP, Windows 2003, Linux Kernel 2.6 (Fedora Core, SUSE)
- Drivers
  - VGA, LAN, WDT, GPIO, Hardware Monitor, Bypass
- Sample code
  - LCM sample string display, LCM testing program, GPIO, WTD, Bypass, Hardware Monitor

## Environment

- Operating temperature
  - 0°C ~ 40°C
- Storage temperature
  - -20°C ~ 75°C
- Relative humidity
  - 10% ~ 90% non-condensing
- EMI/EMC
  - CE
  - FCC Class B
- ESD
  - 2/4KV contact discharge
  - 2/4/8KV air discharge
  - Criteria B

## Weight

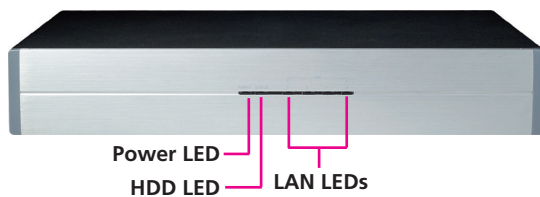
- With packaging: 4kg

## Certifications

- CE approval
- FCC Class B
- UL

## Getting to Know DNA 1110

### Front Panel



#### Power LED

Indicates the power status of the system.

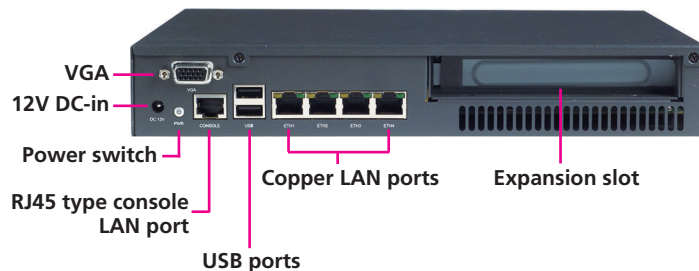
#### HDD LED

Indicates the status of the hard drive.

#### LAN LEDs

Indicates the status of the LAN.

## Rear Panel



### VGA Port

Used to connect an analog VGA monitor.

### 12V DC-in

Used to plug a DC power cord.

### Power Switch

Press to power-on or power-off the system.

### RJ45 Type Console LAN Port

Used to connect RJ45 type Console port.

### USB Ports

Used to connect USB 2.0/1.1 devices.

### Copper LAN Ports

Used to connect LAN network devices.

### Expansion Slot

Used to install a PCI slot.

- Supports 6W for 12Vdc, 3.33A or 3.75A; 20W for 12Vdc, 5A

## CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers on the motherboard. Note that the following procedures are generic for DNA 1110.

### Before You Begin

- Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.
- Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:
  - A Philips screwdriver
  - A flat-tipped screwdriver
  - A set of jewelers Screwdrivers
  - A grounding strap
  - An anti-static pad
- Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.
- Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the elec-

tronic components. Humid environment tend to have less static electricity than dry environments. A grounding strap is warranted whenever danger of static electricity exists.

### Precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on the computers that are still connected to a power supply can be extremely dangerous.

Follow the guidelines below to avoid damage to your computer or yourself:

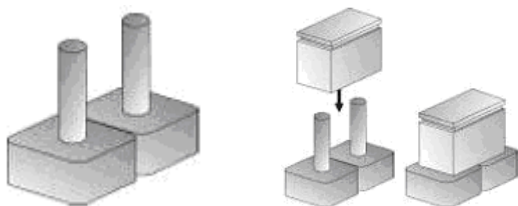
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.
- Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.
- Use correct screws and do not over tighten screws.

## Jumper Settings

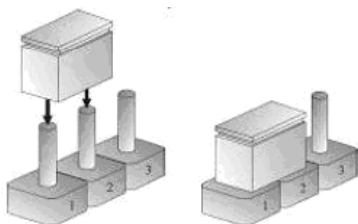
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is **short**. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is **open**.

Refer to the illustrations below for examples of what the 2-pin and 3-pin jumpers look like when they are short (on) and open (off).

Two-Pin Jumpers: Open (Left) and Short (Right)



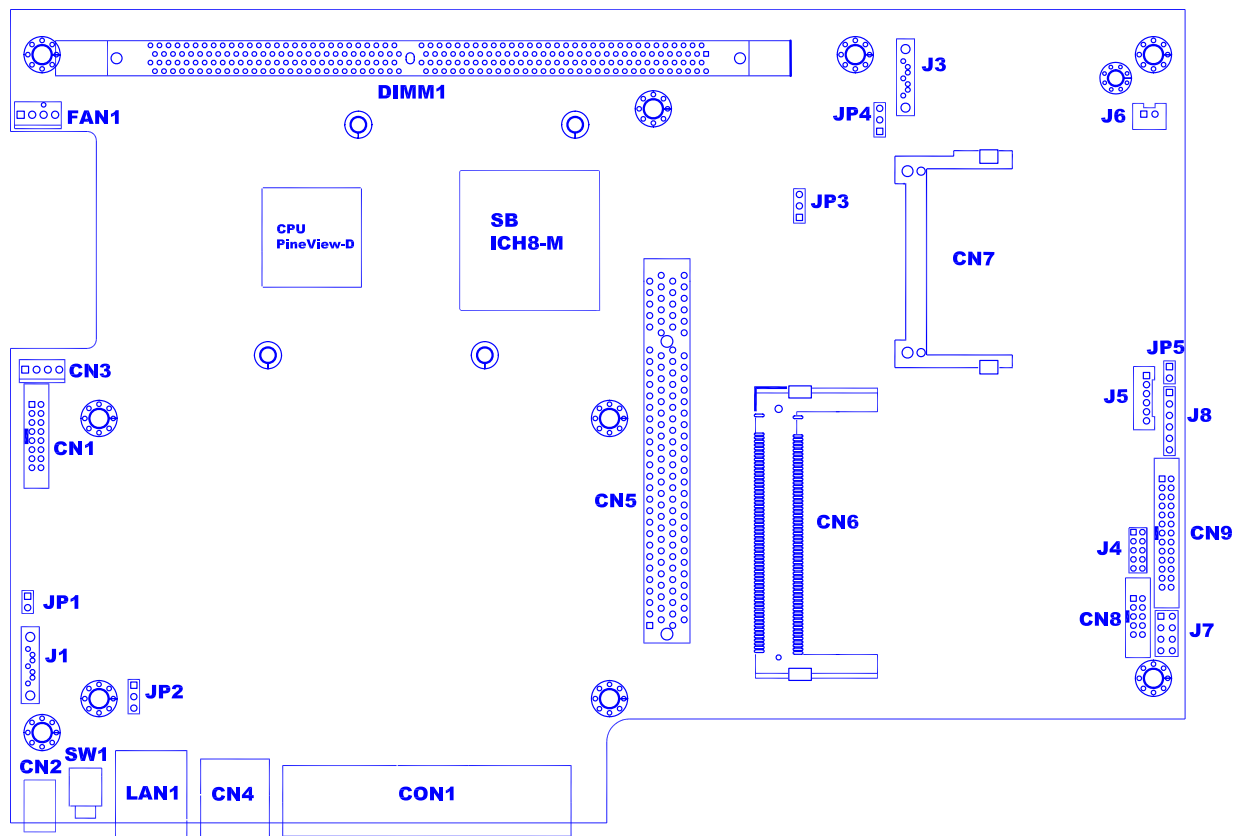
Three-Pin Jumpers: Pins 1 and 2 Are Short



## Locations of the Jumpers and Connectors

### DNB 1110

The figure below is the DNB 1110 main board which is the main board used in the DNA 1110 system. It shows the locations of the jumpers and connectors.





# Jumpers

## Clear CMOS Select

Connector size: 1x3, 2.54mm  
Connector location: JP3



Pin	Definition
1	NC
2	ICH_RTCRST_N
3	Battery GND

## CF Card Master/Slave Select

Connector size: 1x3 3-pin header, 2.54 mm pitch  
Connector location: JP4



Pin	Definition
1	Slave
2	GND
3	Master

H/W Reset

Connector size: 1x2 2-pin header, 2.54mm-M-180  
Connector location: JP5



Pin	Description
1	ICH_SYS_RESET_N_R
2	GND

Power Type Select

Connector size: 1x3 3-pin header, 2.54 mm pitch  
Connector location: JP1



Pin	Definition
1-2 On	AT
2-3 On	ATX

SW2

Pin	Definition	Pin	Definition
1	PWRBT_R#	2	GAL_AT#_ATX
3	GND	4	ICH_PWRBTN_N

SW2	1-4	2-3
ATX	On	Off
AT	Off	On

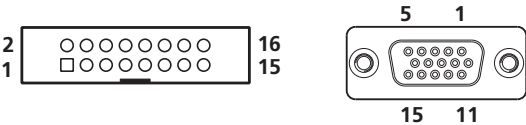


# Connector Pin Definitions

## External I/O Interface

### VGA Connector

Connector size: 2x8 16-pin box header, 2.0 mm pitch  
Connector location: CN1



Pin	Definition	Pin	Definition
1	VGA_R_CON	9	VGA_VCC
2	VGA_G_CON	10	GND
3	VGA_B_CON	11	NC
4	NC	12	VGA_I2CDAT_CON
5	GND	13	VGA_HSYNC_CON
6	GND	14	VGA_VSYNC_CON
7	GND	15	VGA_I2CCLK_CON
8	GND		

### 12V DC-in

Connector location: CN2



Pin	Definition
1	GND
2	GND
3	VCC12

Power Switch

Connector location: SW1

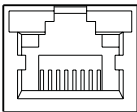


Pin	Definition
1	GND
2	NC
3	PWRST_R#
4	NC
C1	PLED_N
A1	PLED_P
MH1	NC
MH2	NC

RJ45 Type Console Port (RS232 only)

Connector size: RJ45 port

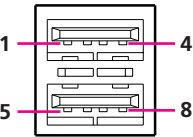
Connector location: LAN1



Pin	Definition	Pin	Definition
1	SP_RTS1_R	2	SP_DTR1_R
3	SP_TXD1_R	4	COM1_GND
5	SP_DCD1_R	6	SP_RXD1_R
7	SP_DSR1_R	8	SP_CTS1_CON

USB Ports

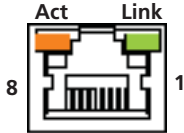
Connector size: Dual USB port, Type A  
Connector location: CN4



Pin	Definition	Pin	Definition
1	VCC	5	VCC
2	USB0-	6	USB1-
3	USB0+	7	USB1+
4	GND	8	GND

Copper LAN Port

Connector size: RJ45 port with LEDs  
Connector location: CON1A



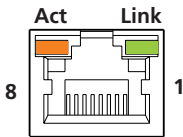
Act	Status
Orange Blinking	Data Activity
Off	No Activity

Link	Status
Green Always Lighted	1G and 10/100MB
Off	No link

Pin	Definition	Pin	Definition
A1	PORT1_TXP0_CN	A2	PORT1_TXN0_CN
A3	PORT1_TXP1_CN	A4	PORT1_TXN1_CN
A5	PORT1_TXP2_CN	A6	PORT1_TXN2_CN
A7	PORT1_TXP3_CN	A8	PORT1_TXN3_CN
A9	LAN1_LINK1G#	A10	LAN1_LED1+
A11	LAN1_LED_ACT#	A12	LAN1_LED2+
MH1	GND		

Copper LAN Port

Connector size: RJ45 port with LEDs  
Connector location: CON1B



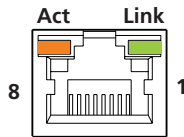
Act	Status
Orange Blinking	Data Activity
Off	No Activity

Link	Status
Green Always Lighted	1G and 10/100MB
Off	No link

Pin	Definition	Pin	Definition
B1	PORT2_TXP0_CN	B2	PORT2_TXN0_CN
B3	PORT2_TXP1_CN	B4	PORT2_TXN1_CN
B5	PORT2_TXP2_CN	B6	PORT2_TXN2_CN
B7	PORT2_TXP3_CN	B8	PORT2_TXN3_CN
B9	LAN2_LINK1G#	B10	LAN2_LED1+
B11	LAN2_LED_ACT#	B12	LAN2_LED2+
MH2	GND		

Copper LAN Port

Connector size: RJ45 port with LEDs  
Connector location: CON1C



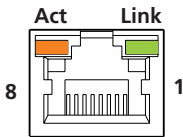
Act	Status
Orange Blinking	Data Activity
Off	No Activity

Link	Status
Green Always Lighted	1G and 10/100MB
Off	No link

Pin	Definition	Pin	Definition
C1	PORT3_TXP0_CN	C2	PORT3_TXN0_CN
C3	PORT3_TXP1_CN	C4	PORT3_TXN1_CN
C5	PORT3_TXP2_CN	C6	PORT3_TXN2_CN
C7	PORT3_TXP3_CN	C8	PORT3_TXN3_CN
C9	LAN3_LINK1G#	C10	LAN3_LED1+
C11	LAN3_LED_ACT#	C12	LAN3_LED2+
MH3	GND		

Copper LAN Port

Connector size: RJ45 port with LEDs  
Connector location: CON1D



Act	Status
Orange Blinking	Data Activity
Off	No Activity

Link	Status
Green Always Lighted	1G and 10/100MB
Off	No link

Pin	Definition	Pin	Definition
D1	PORT4_TXP0_CN	D2	PORT4_TXN0_CN
D3	PORT4_TXP1_CN	D4	PORT4_TXN1_CN
D5	PORT4_TXP2_CN	D6	PORT4_TXN2_CN
D7	PORT4_TXP3_CN	D8	PORT4_TXN3_CN
D9	LAN4_LINK1G#	D10	LAN4_LED1+
D11	LAN4_LED_ACT#	D12	LAN4_LED2+
MH4	GND		

Internal Connectors

SATAII Port

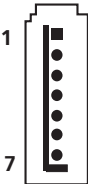
Connector size: Standard Serial ATAII, 1.27mm  
Connector location: J1



Pin	Definition
1	GND
2	TXP0
3	TXN0
4	GND
5	RXN0
6	RXP0
7	GND

SATAII Port

Connector size: Standard Serial ATAII, 1.27mm  
Connector location: J3



Pin	Definition
1	GND
2	TXP1
3	TXN1
4	GND
5	RXN1
6	RXP1
7	GND

SATA Power Connector

Connector size: 1x4 4-pin Wafer, 2.5 mm pitch  
Connector location: CN3



Pin	Definition
1	VCC12
2	GND
3	GND
4	VCC5

SATA DOM Power Connector

Connector size: 1x2 2-pin boxed header, 2.5 mm JST  
Connector location: J6



Pin	Definition
1	VCC5
2	GND

Digital I/O Connector

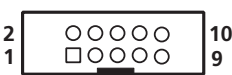
Connector size: 2x5 10-pin header, 2.0 mm pitch  
Connector location: J4



Pin	Definition	Pin	Definition
1	VCC5	2	GND
3	SIO_GPIN10	4	SIO_GPOUT14
5	SIO_GPIN11	6	SIO_GPOUT15
7	SIO_GPIN12	8	SIO_GPOUT16
9	SIO_GPIN13	10	SIO_GPOUT17

COM2 Connector (RS232)

Connector size: 2x5 10-pin boxed header, 2.0 mm  
Connector location: CN8



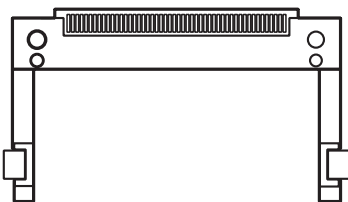
Pin	Definition	Pin	Definition
1	SP_DCD2	2	SP_RXD2
3	SP_TXD2	4	SP_DTR2
5	COM2_GND	6	SP_DSR2
7	SP_RTS2	8	SP_CTS2
9	SP_RI2	10	COM2_GND



## CompactFlash

Connector type: CompactFlash Type 2

Connector location: CN7



Pin	Description	Pin	Description
1	GND	2	IDE_DD3
3	IDE_DD4	4	IDE_DD5
5	IDE_DD6	6	IDE_DD7
7	IDE_CS1_N	8	GND
9	GND	10	GND
11	GND	12	GND
13	VCC5	14	GND
15	GND	16	GND
17	GND	18	IDE_DA2
19	IDE_DA1	20	IDE_DA0
21	IDE_DD0	22	IDE_DD1
23	IDE_DD2	24	NC
25	IDE_CD2#	26	CF_CD1_N
27	IDE_DD11	28	IDE_DD12

Pin	Description	Pin	Description
29	IDE_DD13	30	IDE_DD14
31	IDE_DD15	32	IDE_CS3_N
33	NC	34	IDE_DIOR_N
35	IDE_DIOW_N	36	VCC5
37	IDE_IRQ14	38	VCC5
39	CF_SEL_N	40	NC
41	IDE_RST_N	42	IDE_DIORDY
43	IDE_DDREQ	44	IDE_DDACK_N
45	CF_ACT_N	46	IDE_PATADET
47	IDE_DD8	48	IDE_DD9
49	IDE_DD10	50	GND

USB Connector

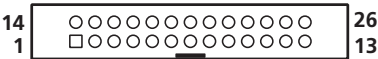
Connector size: 1x6 6-pin boxed header, JST-2.0mm-M-180  
Connector location: J5



Pin	Definition
1	VCC
2	USB2-
3	USB2+
4	USB3-
5	USB3+
6	GND

Parallel Connector

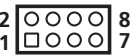
Connector size: 26-pin box header, 2.0 mm pitch  
Connector location: CN9



Pin	Definition	Pin	Definition
1	LPT_STB#R	14	GND
2	LPT_AFD#R	15	LPT_PDR6
3	LPT_PDR0	16	GND
4	LPT_ERR#	17	LPT_PDR7
5	LPT_PDR1	18	GND
6	LPT_INIT#R	19	LPT_ACK#R
7	LPT_PDR2	20	GND
8	LPT_SLIN#R	21	LPT_BUSY
9	LPT_PDR3	22	GND
10	GND	23	LPT_PE
11	LPT_PDR4	24	GND
12	GND	25	LPT_SLCT
13	LPT_PDR5	26	GND

PS/2 Keyboard/Mouse Connector

Connector size: 2x4 8-pin header, 2.54 mm  
Connector location: J7



Pin	Definition	Pin	Definition
1	VCC5	2	VCC5
3	KB_DATA	4	LM_DATA
5	KB_CLK	6	LM_CLK
7	GND	8	GND

GAL Programming Connector

Connector size: 1x6 6-pin header, 2.54 mm  
Connector location: J8



Pin	Definition
1	3VSB
2	GND
3	GAL_TCK_2
4	GAL_TDO_2
5	GAL_TDI_2
6	GAL_TMS_2

System Fan Connector

Connector size: 1x4 4-pin Wafer, 2.54 mm pitch  
Connector location: FAN1



Pin	Definition
1	GND
2	VCC12
3	FAN1
4	FANPWM1

PCI Slot

Connector size: 2x62 3.3V slot  
Connector location: CN5



Pin	Definition	Pin	Definition
A1	PCI_TRST#	B1	VCC12N
A2	VCC12	B2	PCI_TCK
A3	PCI_TMS	B3	GND
A4	PCI_TDI	B4	PCI_TDO
A5	VCC5	B5	VCC5
A6	PCI_IRQ#A	B6	VCC5
A7	PCI_IRQ#C	B7	PCI_IRQ#B
A8	VCC5	B8	PCI_IRQ#D
A9	NA	B9	NA
A10	VCC5	B10	PCI_REQ#1
A11	PCI_GNT#1	B11	PCI_AD19
A12	GND	B12	GND
A13	GND	B13	GND
A14	3VSB	B14	PCI_CLK1
A15	PCI_RST#	B15	GND
A16	VCC5	B16	PCI_CLK0
A17	PCU_GNT#0	B17	GND
A18	GND	B18	PCI_REQ#0
A19	PCI_PME#	B19	VCC5

Pin	Definition	Pin	Definition
A20	PCI_AD30	B20	PCI_AD31
A21	VCC3	B21	PCI_AD29
A22	PCI_AD28	B22	GND
A23	PCI_AD26	B23	PCI_AD27
A24	GND	B24	PCI_AD25
A25	PCI_AD24	B25	VCC3
A26	PCI_IDSEL1	B26	PCI_CBE#3
A27	VCC3	B27	PCI_AD23
A28	PCI_AD22	B28	GND
A29	PCI_AD20	B29	PCI_AD21
A30	GND	B30	PCI_AD19
A31	PCI_AD18	B31	VCC3
A32	PCI_AD16	B32	PCI_AD17
A33	VCC3	B33	PCI_CBE#2
A34	PCI_FRAME#	B34	GND
A35	GND	B35	PCI_IRDY#
A36	PCI_TRDY#	B36	VCC3
A37	GND	B37	PCI_DEVSEL#
A38	PCI_STOP#	B38	GND
A39	VCC3	B39	PCI_LOCK
A40	SDONE	B40	PCI_PERR#
A41	SBC#	B41	VCC3
A42	GND	B42	PCI_SERR#
A43	PCI_PAR	B43	VCC3
A44	PCI_AD15	B44	PCI_CBE#1

Pin	Definition	Pin	Definition
A45	VCC33	B45	PCI_AD14
A46	PCI_AD13	B46	GND
A47	PCI_AD11	B47	PCI_AD12
A48	GND	B48	PCI_AD10
A49	PCI_AD9	B49	GND
A52	PCI_CBE#0	B52	PCI_AD8
A53	VCC3	B53	PCI_AD7
A54	PCI_AD6	B54	VCC
A55	PCI_AD4	B55	PCI_AD5
A56	GND	B56	PCI_AD3
A57	PCI_AD2	B57	GND
A58	PCI_AD0	B58	PCI_AD1
A59	VCC5	B59	VCC5
A60	PCI_REQ64#	B60	PCI_ACK64#
A61	VCC5	B61	VCC5
A62	VCC5	B62	VCC5

## Mini PCI Slot

Connector size: 2x62 3.3V slot

Connector location: CN6



Pin	Definition	Pin	Definition
1	TIP	2	RING
3	8PMJ-3	4	8PMJ-1
5	8PMJ-6	6	8PMJ-2
7	8PMJ-7	8	8PMJ-4
9	8PMJ-8	10	8PMJ-5
11	LED-1GRNP	12	LED2-YELP
13	LED-1GRNN	14	LED2-YRLN
15	CHSGND	16	RESERVED5
17	INTB#	18	5V
19	3.3V	20	INTA#
21	RESERVED1	22	RESERVED6
23	GND	24	3.3VAUX
25	CLK	26	RESET#

Pin	Definition	Pin	Definition
27	GND	28	3.3V
29	REQ#	30	GNT#
31	3.3V	32	GND
33	AD31	34	PME#
35	AD29	36	RESERVED7
37	GND	38	AD30
39	AD27	40	3.3V
41	AD25	42	AD28
43	RESERVED2	44	AD26
45	CBE#3	46	AD24
47	AD23	48	IDSEL
49	GND	50	GND
51	AD21	52	AD22
53	AD19	54	AD20
55	GND	56	PAR
57	AD17	58	AD18
59	CBE#2	60	AD16
61	IRTY#	62	GND
63	3.3V	64	FRAME#
65	CLKRUN	66	TRDY#
67	SERR#	68	STOP#
69	GND	70	3.3V
71	PERR#	72	DEVESEL#
73	CBE#1	74	GND
75	AD14	76	AD15

Pin	Definition	Pin	Definition
77	GND	78	AD13
79	AD12	80	AD11
81	AD10	82	GND
83	GND	84	AD9
85	AD8	86	CBE#0
87	AD7	88	3.3V
89	3..3V	90	AD6
91	AD5	92	AD4
93	RESERVED3	94	AD2
95	AD3	96	AD0
97	5V	98	RESERVED-WIP4
99	AD1	100	RESERVED-WIP4
101	GND	102	GND
103	AC-SYNC	104	M66EN
105	AC-SDATA-IN	106	AC-SDATA-OUT
107	AC-BIT-CLK	108	AC-CODEC-ID0#
109	AC-CODEC-ID1#	110	AC-RESET#
111	MOD-AUDIO-OUT	112	RESERVED8
113	AUDIO-GND	114	GND
115	SYS-AUDIO-OUT	116	SYS-AUDIO-IN
117	SYS-AUDIO-OUT-GND	118	SYS-AUDIO-IN-GND
119	AUDIO-GND	120	AUDIO-GND
121	RESERVED4	122	MPCIACT#
123	VCC5VA	124	3.3VAUX

## CHAPTER 3: SYSTEM SETUP

### Removing the Chassis Cover



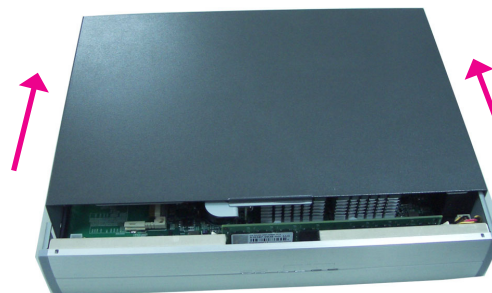
Prior to removing the chassis cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

1. The screws around the cover are used to secure the cover to the chassis. Remove these screws and put them in a safe place for later use.



The dots denote the locations of the screws.

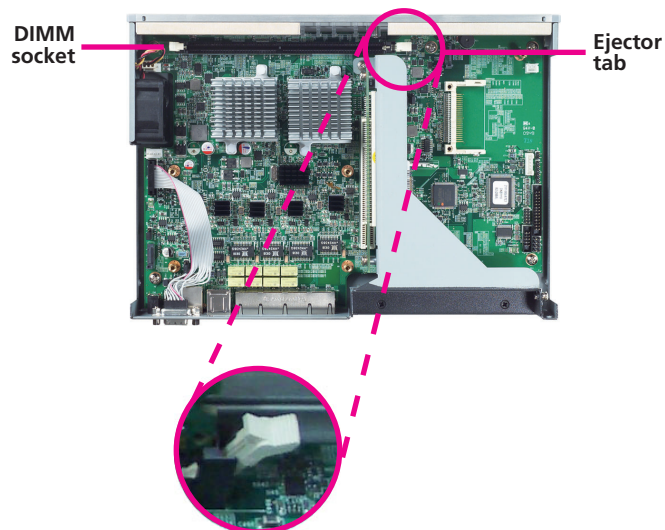
2. Slide the cover backward then remove it from the chassis.



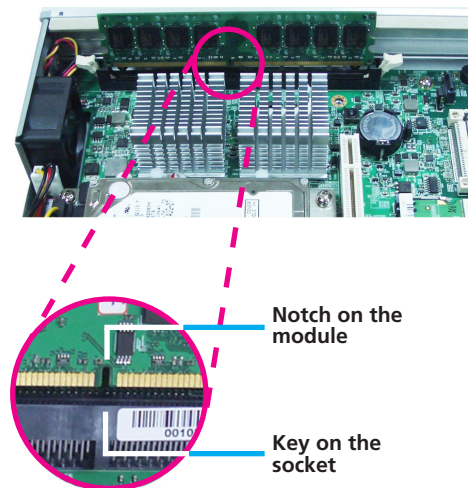


## Installing a DIMM

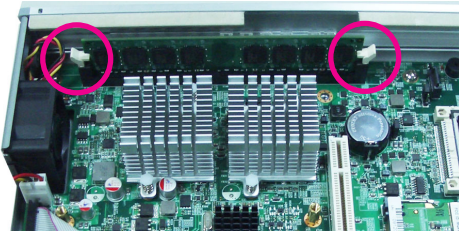
1. Push the ejector tabs which are at the ends of the socket outward. This indicates that the socket is unlocked.



2. Note how the module is keyed to the socket. Grasping the module by its edges, align the module with the socket so that the "notch" on the module is aligned with the "key" on the socket. The key ensures the module can be plugged into the socket in only one direction.

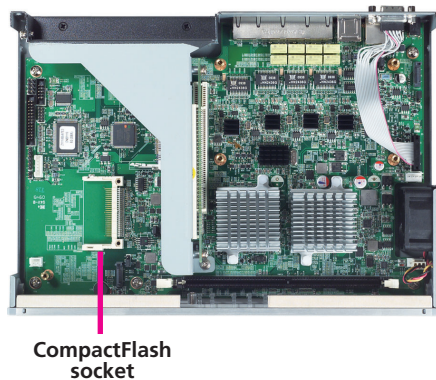


3. Seat the module vertically, pressing it down firmly until it is completely seated in the socket. The ejector tabs at the ends of the socket will automatically snap into the locked position to hold the module in place.

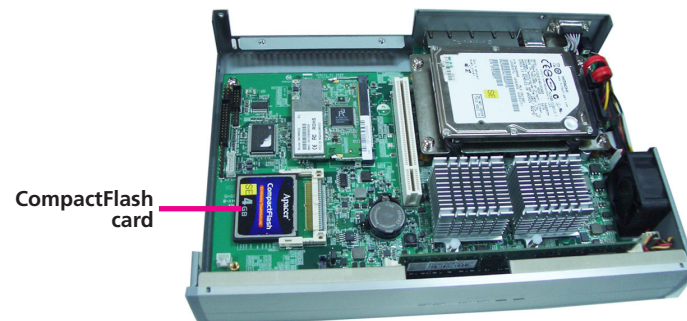


## Installing a CompactFlash Card

1. Locate for the CompactFlash socket on the board.



2. With the CompactFlash card's label facing up, position the card to the socket.

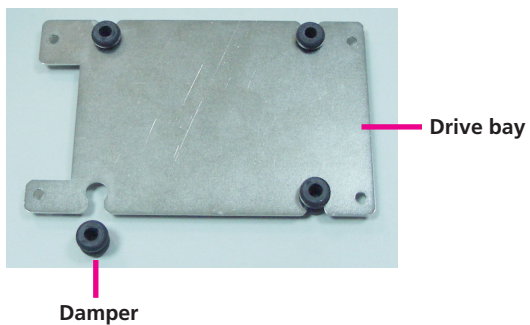


3. Insert the card until it is completely seated in the socket.



## Installing a SATA Hard Drive

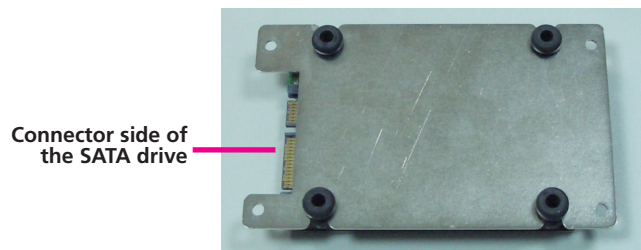
1. Remove the drive bay from the chassis.
2. Insert the provided dampers on the sides of the drive bay.



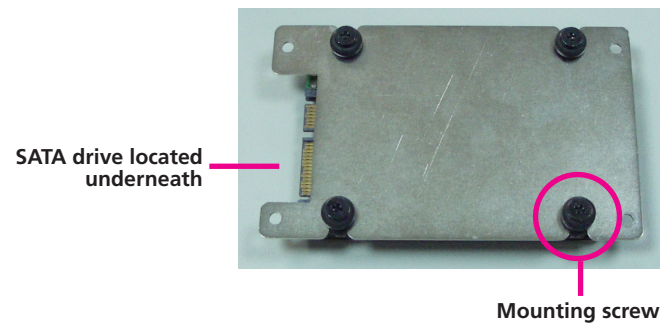
3. Place the SATA drive on the drive bay.



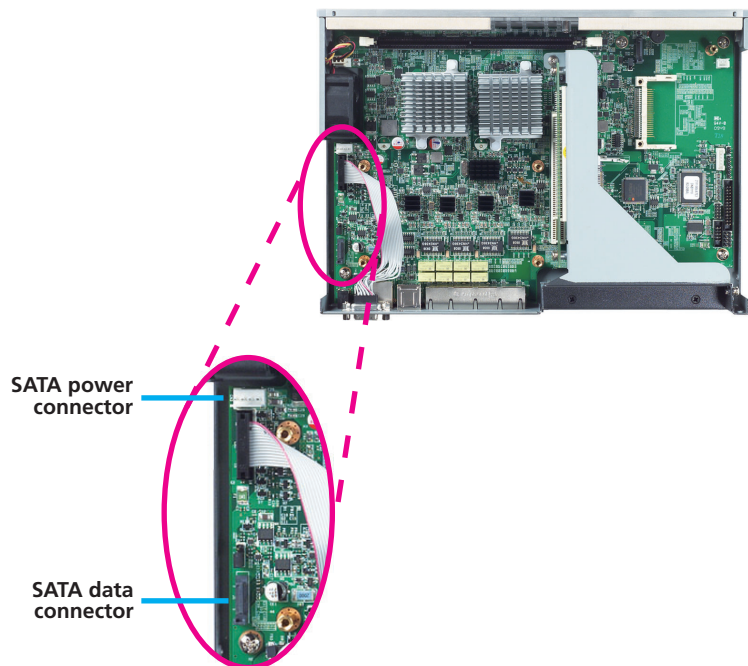
4. Turn to the other side of the bay then use the provided mounting screws to secure the SATA drive to the drive bay.



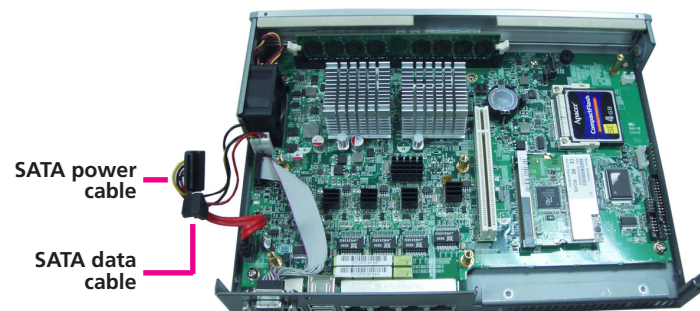
5. The photo below shows the screws mounted in place.



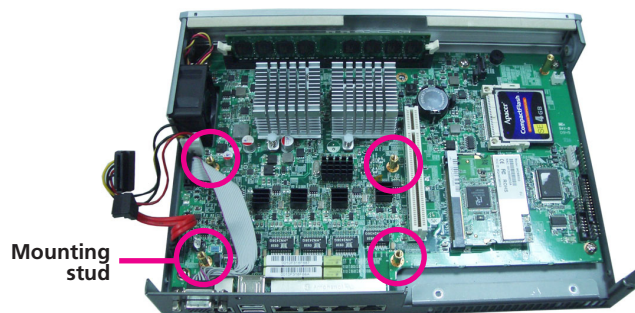
6. Locate for the SATA data connector and the SATA power connector on the motherboard.



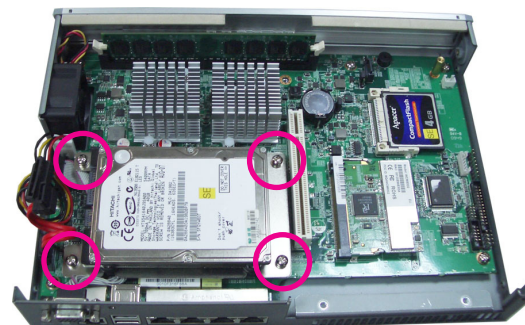
7. Connect the provided SATA data cable and SATA power cable to the connectors on the motherboard.



8. Locate for the mounting studs on the board.



9. Align the mounting holes of the drive bay with the mounting studs on the board then use the provided mounting screws to secure the drive bay in place.



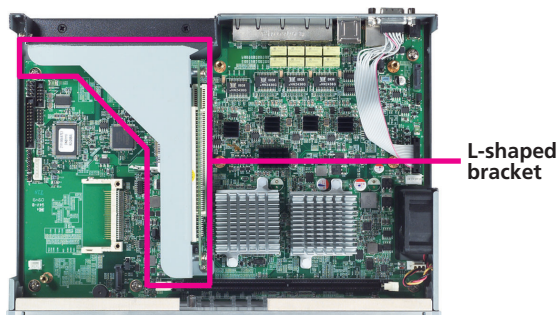


10. Connect the SATA data cable and SATA power cable to the SATA drive.

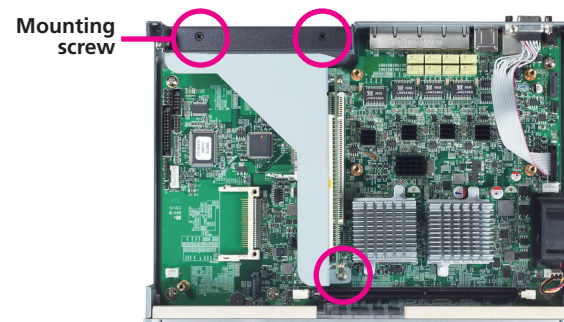


## Installing a PCI Card

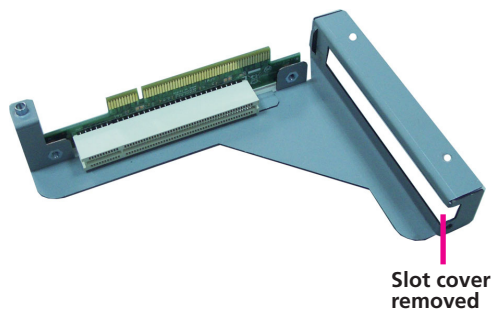
1. The PCI slot is attached on an L-shaped bracket.



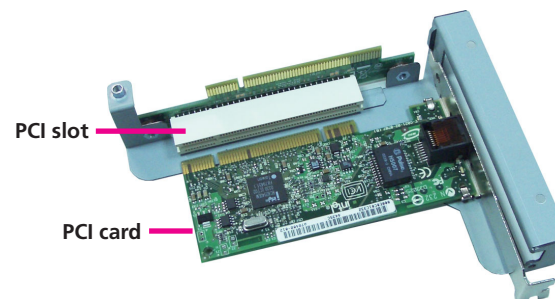
2. Remove the mounting screws that secure the L-shaped bracket to the chassis.



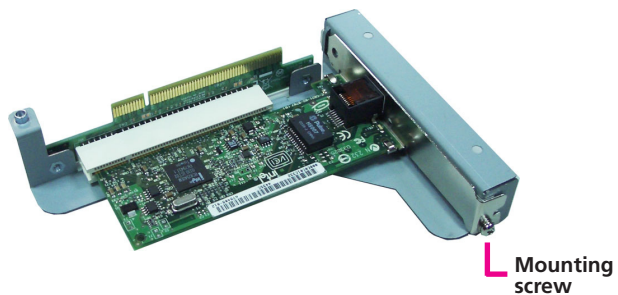
3. Remove the slot cover.



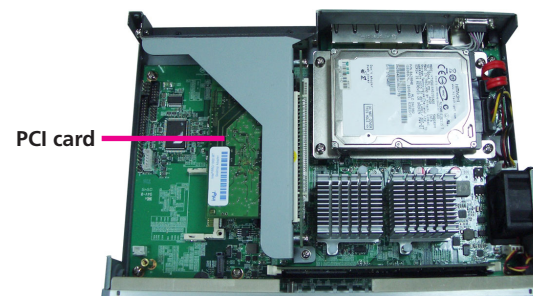
4. Align the PCI card with the PCI slot then push it firmly until it is completely seated in the slot.



5. Secure the card with a mounting screw.

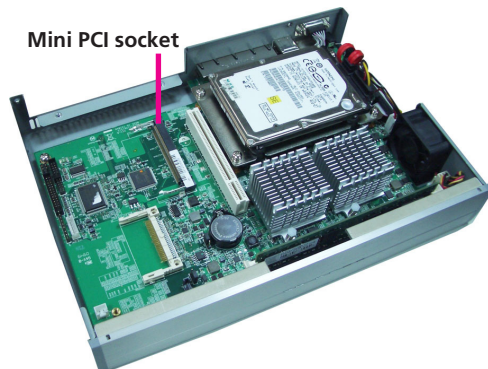


6. Install the bracket back into the chassis then secure the bracket with the mounting screws you removed in step 2.

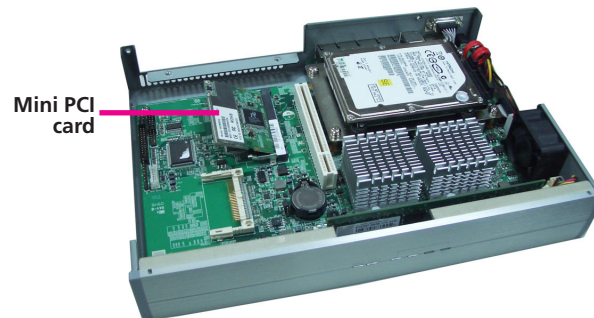


## Installing a Mini PCI Card

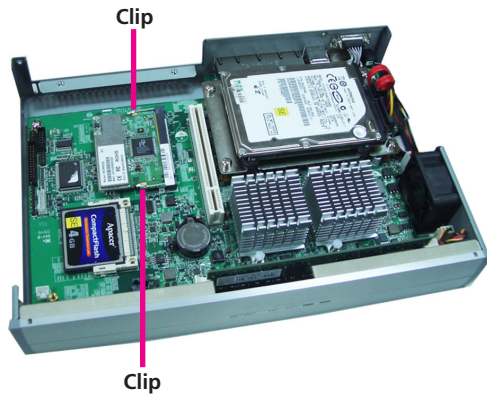
1. Locate for the Mini PCI socket on the board.



2. Insert the Mini PCI card into the socket at an approximately 30 degrees angle. Apply firm even pressure to each end of the card until it slips into the socket. The gold-plated connector on the edge of the card will almost completely disappear inside the socket.



3. Push the card down until the clips on both sides of the socket lock into position. You will hear a distinctive “click”, indicating the card is correctly locked into position.



## Installing the System into a Rack Cabinet

### Rackmount Instructions

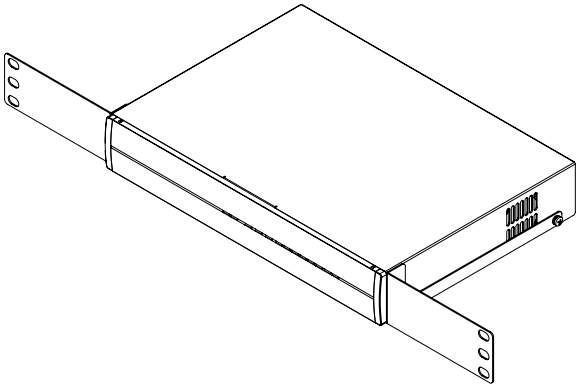
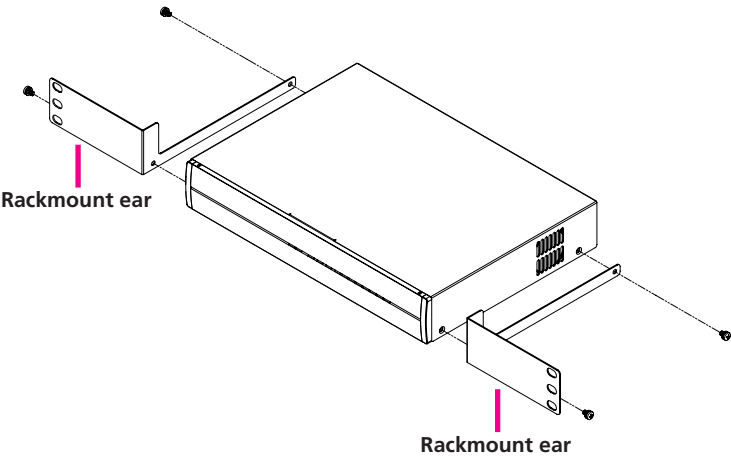
To mount the “DNA1110XXXXXXXXXXXXXXX” in any standard-sized , 272 mm wide, 1U high rack, follow these instructions:

1. Place the “DNA1110XXXXXXXXXXXXXXX” on a hard flat surface with the front panel facing you.
2. Attach a rack-mount bracket to one side of the “DNA1110XXXXXXXXXXXXXXX” with the supplied screws. Then attach the other bracket to the other side.
3. Make sure the brackets are properly attached to the “DNA1110XXXXXXXXXXXXXXX”.
4. Use the appropriate screws (not included) to securely attach the brackets to your rack.
5. Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
6. Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
7. Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
8. Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
9. Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips)."



#### Important:

Make sure you use the screws supplied with the mounting brackets. Using the wrong screws could damage the “DNA1110XXXXXXXXXXXXXXX” and would invalidate your warranty.



**Rackmount Ears Attached**



## CHAPTER 4: BIOS SETUP

This chapter describes how to use the BIOS setup program for the DNA 1110. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

To check for the latest updates and revisions, visit the NEXCOM Web site at [www.nexcom.com.tw](http://www.nexcom.com.tw).

### About BIOS Setup

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor your system to suit your individual work needs. It is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters.

These parameters are stored in non-volatile battery-backed-up CMOS RAM that saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values found in CMOS.

With easy-to-use pull down menus, you can configure such items as:

- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

The settings made in the setup program affect how the computer performs. It is important, therefore, first to try to understand all the Setup options, and second, to make settings appropriate for the way you use the computer.

### When to Configure the BIOS

This program should be executed under the following conditions:

- When changing the system configuration
- When a configuration error is detected by the system and you are prompted to make changes to the Setup program
- When resetting the system clock
- When redefining the communication ports to prevent any conflicts
- When making changes to the Power Management configuration
- When changing the password or making other changes to the security setup

Normally, CMOS setup is needed when the system hardware is not consistent with the information contained in the CMOS RAM, whenever the CMOS RAM has lost power, or the system features need to be changed.

## Default Configuration

Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

## Entering Setup

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks; if an error is encountered, the error will be reported in one of two different ways:

- If the error occurs before the display device is initialized, a series of beeps will be transmitted.
- If the error occurs after the display device is initialized, the screen will display the error message.

Powering on the computer and immediately pressing <Del> allows you to enter Setup. Another way to enter Setup is to power on the computer and wait for the following message during the POST:

```
TO ENTER SETUP BEFORE BOOT
PRESS <CTRL-ALT-ESC>
Press the <Del> key to enter Setup:
```

## Legends

Key	Function
Right and Left arrows	Moves the highlight left or right to select a menu.
Up and Down arrows	Moves the highlight up or down between sub-menus or fields.
<Esc>	Exits to the BIOS Setup Utility.
+ (plus key)	Scrolls forward through the values or options of the highlighted field.
- (minus key)	Scrolls backward through the values or options of the highlighted field.
Tab	Selects a field.
<F1>	Displays General Help.
<F10>	Saves and exits the Setup program.
<Enter>	Press <Enter> to enter the highlighted sub-menu.

### Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

### Submenu

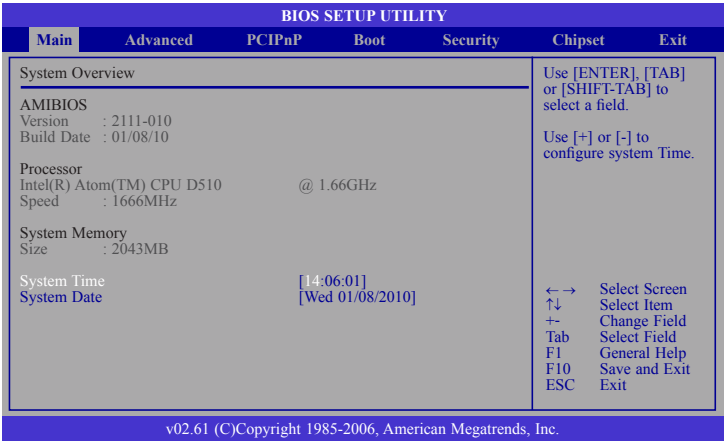
When “►” appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press <Enter>.

# BIOS Setup Utility

Once you enter the AMI BIOS Setup Utility, the Main Menu will appear on the screen. The main menu allows you to select from six setup functions and one exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the submenu.

## Main

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.



## AMI BIOS

Displays the detected BIOS information.

## Processor

Displays the detected processor information.

## System Memory

Displays the detected system memory information.

## System Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

## System Date

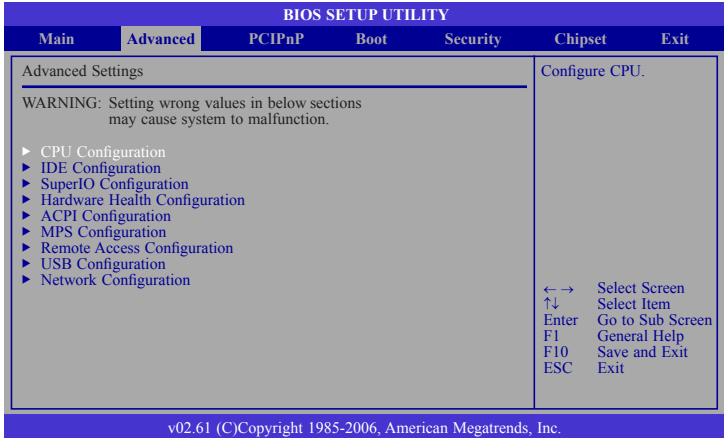
The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1999 to 2099.

Advanced

The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.



Setting incorrect field values may cause the system to malfunction.



CPU Configuration

This section is used to configure the CPU. It will also display detected CPU information.

IDE Configuration

This section is used to configure the IDE drives.

Super IO Configuration

This section is used to configure the I/O functions supported by the on-board Super I/O chip.

Hardware Health Configuration

This section is used to configure the hardware monitoring events such as temperature, fan speed and voltages.

ACPI Configuration

This section is used to configure the Advanced ACPI configuration.

MPS Configuration

This section is used to configure the multi-processor table.

Remote Access Configuration

This section is used to configure remote access to the system.

USB Configuration

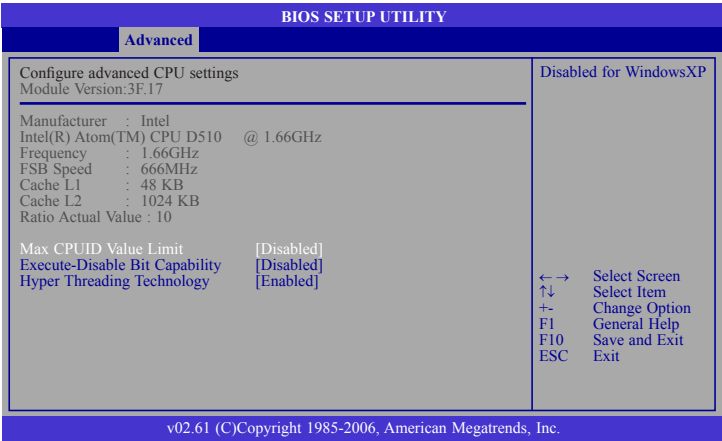
This section is used to configure USB devices.

Network Configuration

This section is used to configure LAN.

CPU Configuration

This section is used to configure the CPU. It will also display detected CPU information.



Max CPUID Value Limit

Set this field to Disabled when using Windows XP. Set this field to Enabled when using legacy operating systems so that the system will boot even when it doesn't support CPUs with extended CPUID function.

Execute-Disable Bit Capability

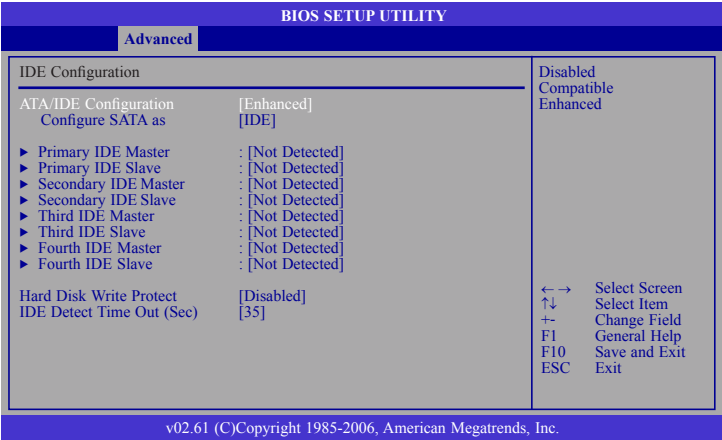
When this field is set to Disabled, it will force the XD feature flag to always return to 0.

Hyper Threading Technology

Enable this field for Windows XP and Linux which are optimized for Hyper-Threading technology. Select disabled for other OSes not optimized for Hyper-Threading technology. When disabled, only one thread per enabled core is enabled.

IDE Configuration

This section is used to configure the IDE drives.



ATA/IDE Configuration

This field is used to configure the IDE drives. The options are Disabled, Compatible and Enhanced.

Configure SATA As

- IDE This option configures the Serial ATA drives as Parallel ATA physical storage device.
- AHCI This option configures the Serial ATA drives to use AHCI (Advanced Host Controller Interface). AHCI allows the storage driver to enable the advanced Serial ATA features which will increase storage performance.

Primary IDE Master to Fourth IDE Slave

When you enter the BIOS Setup Utility, the BIOS will auto detect the existing IDE devices then displays the status of the detected devices. To configure an IDE drive, move the cursor to a field then press <Enter>.

Hard Disk Write Protect

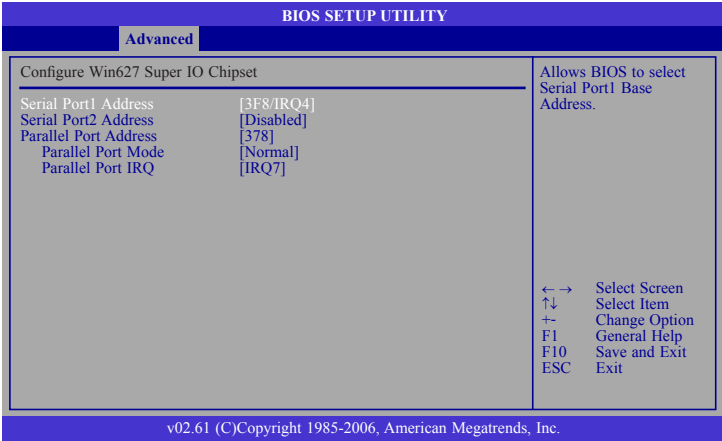
Enables or disables write protection of the device. This is applicable only when the device is accessible through the BIOS.

IDE Detect Time Out (Sec)

Selects the time out value for detecting ATA/ATAPI devices.

### Super IO Configuration

This section is used to configure the I/O functions supported by the on-board Super I/O chip.



#### Serial Port1 Address and Serial Port2 Address

- Auto      The system will automatically select an I/O address for the on-board serial port.
- 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3      Allows you to manually select an I/O address for the onboard serial port.
- Disabled      Disables the onboard serial port.

#### Parallel Port Address

This field is used to select an I/O address for the parallel port.

#### Parallel Port Mode

This field is used to select normal, ECP or EPP mode of the parallel port.

#### Parallel Port IRQ

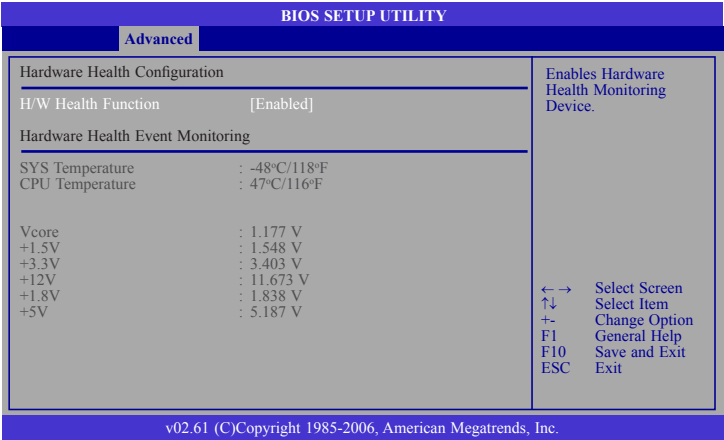
This field is used to select an IRQ for the parallel port.

### Hardware Health Configuration

This section is used to configure the hardware monitoring events such as temperature, fan speed and voltages.

### Vcore to +5V

Detects and displays the output voltages.



### H/W Health Function

Enables or disables the hardware monitoring function.

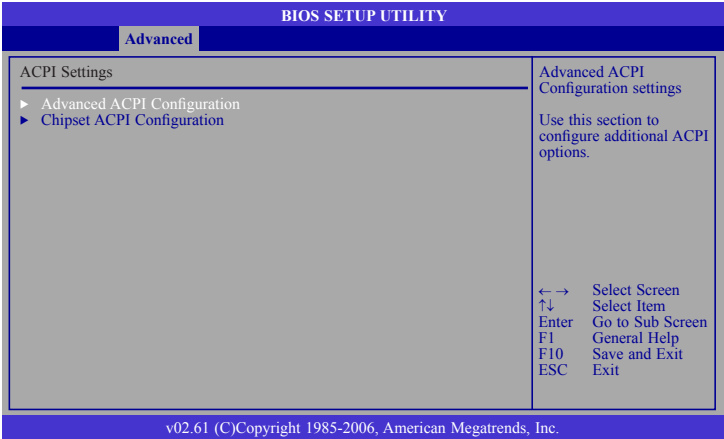
### SYS Temperature and CPU Temperature

Detects and displays the current temperature of the CPU and the internal temperature of the system.



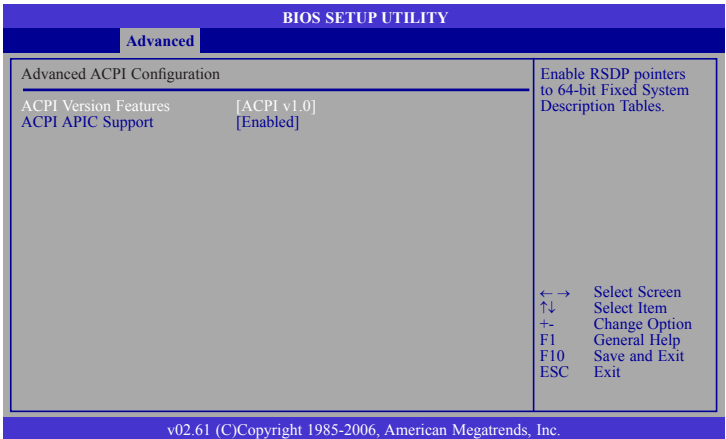
### ACPI Configuration

This section is used to configure the ACPI features.



### Advanced ACPI Configuration

This section is used to configure the advanced ACPI features.



### ACPI Version Features

Selects the ACPI version.

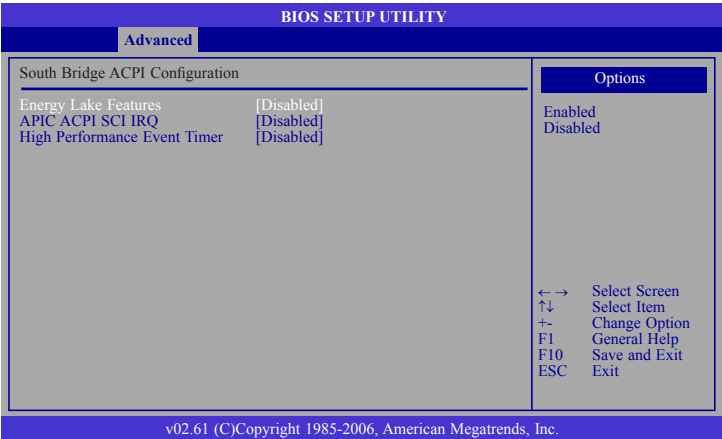
### ACPI APIC Support

The options are Enabled and Disabled. Includes ACPI APIC table pointer to RSDT pointer list.



Chipset ACPI Configuration

This section is used to configure the chipset ACPI features.



Energy Lake Features

The options are Enabled and Disabled.

APIC ACPI SCI IRQ

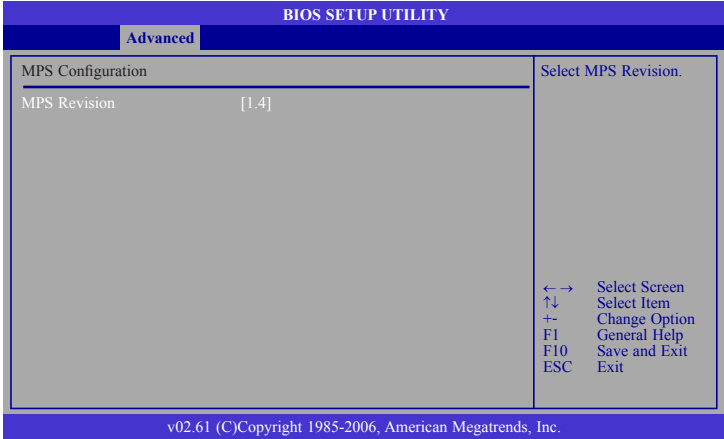
Enables or disables the APIC ACPI SCI IRQ.

High Performance Event Timer

Enables or disables the event timer.

MPS Configuration

This section is used to configure the multi-processor table.



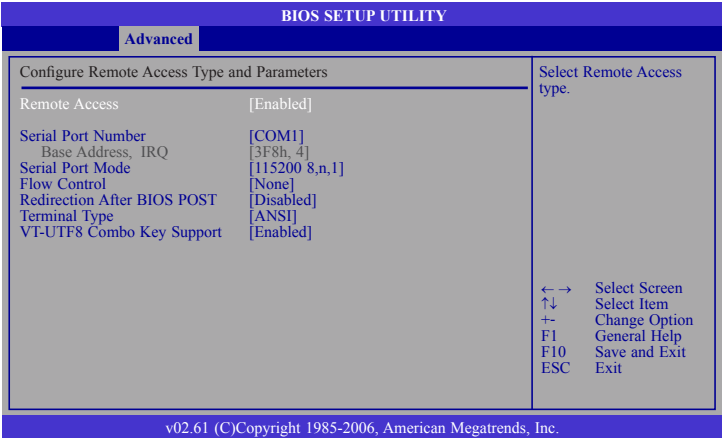
MPS Revision

Selects the MPS revision used by the system.



Remote Access Configuration

This section is used to configure the remote access type and parameters.



Remote Access

Enables or disables the remote access feature.

Serial Port Number

Selects the serial port.

Base Address, IRQ

Selects an IRQ for the serial port.

Serial Port Mode

Selects a mode for the serial port.

Flow Control

Selects the flow control of the remote access. The options are Hardware, Software and None.

Redirection After BIOS POST

- Boot Loader    Redirection is active during POST and during Boot Loader.
- Always        Redirection is always active. Some OSes may not work when this field is set to Always.
- Disable       Turns off the redirection after POST.

Terminal Type

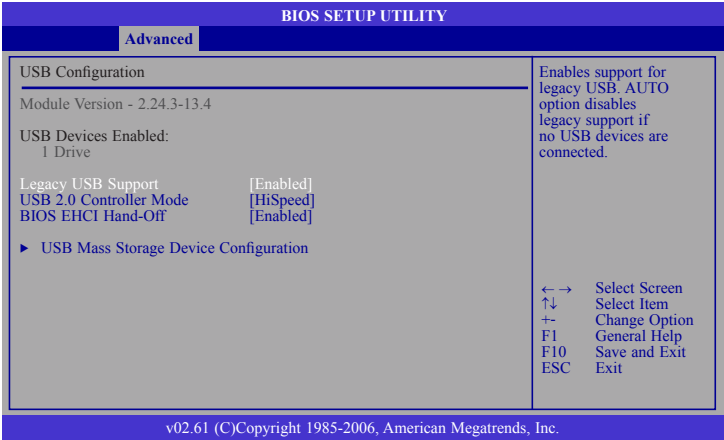
Selects the target terminal type.

VT-UTF8 Combo Key Support

Enables or disables VT-UTF8 combination key support for ANSI/VT100 terminals.

### USB Configuration

This section is used to configure USB devices.



### Legacy USB Support

Due to the limited space of the BIOS ROM, the support for legacy USB keyboard (in DOS mode) is by default set to Disabled. With more BIOS ROM space available, it will be able to support more advanced features as well as provide compatibility to a wide variety of peripheral devices.

If a PS/2 keyboard is not available and you need to use a USB keyboard to install Windows (installation is performed in DOS mode) or run any program under DOS, set this field to Enabled.

### USB 2.0 Controller Mode

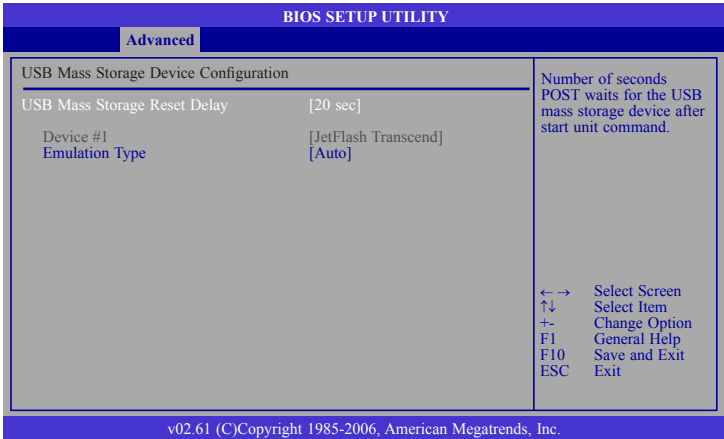
Sets the USB 2.0 controller mode to HiSpeed (480 Mbps) or FullSpeed (12 Mbps).

### BIOS EHCI Hand-Off

Enable this field when using operating systems without the EHCI hand-off support.

USB Mass Storage Device Configuration

This section is used to configure the USB mass storage devices.



USB Mass Storage Reset Delay

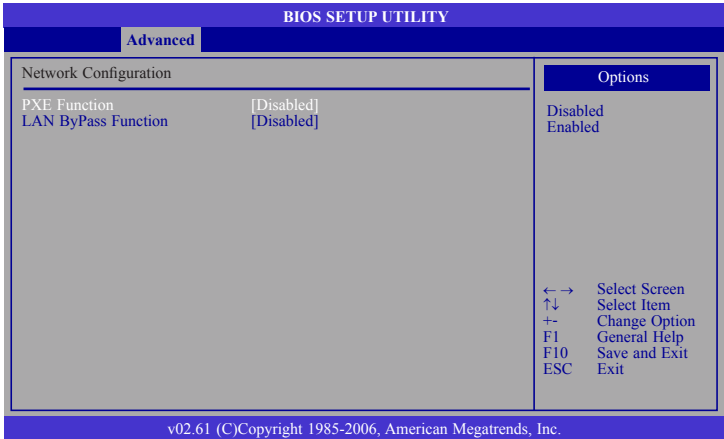
Selects the number of seconds POST waits for the USB mass storage device after the start unit command.

Emulation Type

- Auto      USB devices less than 538MB will be emulated as floppy and the rest as hard drive.
- Forced FDD      Forces a HDD formatted drive to boot as FDD (ex. ZIP drive).

Network Configuration

This section is used to configure then network.



PXE Function


Enables or disables the PXE function.

LAN ByPass Function

Enables or disables the LAN bypass function.

PCIPnP

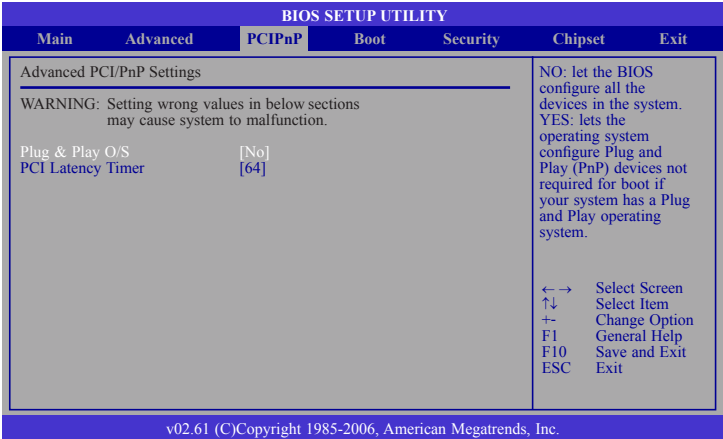
This section is used to configure settings for PCI/PnP devices.



Setting incorrect field values may cause the system to malfunction.

PCI Latency Timer

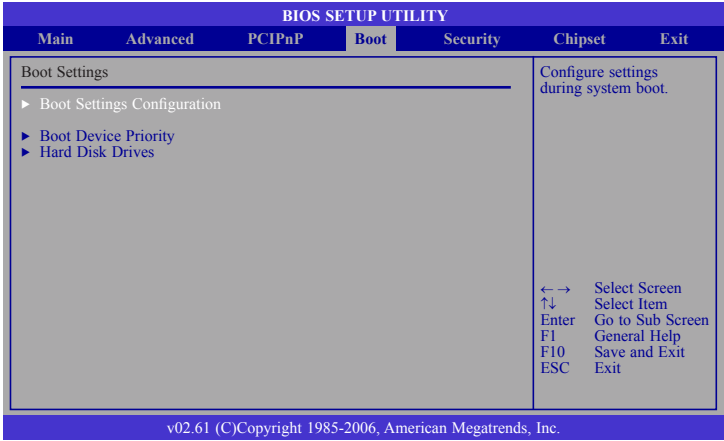
This feature is used to select the length of time each PCI device will control the bus before another takes over. The larger the value, the longer the PCI device can retain control of the bus. Since each access to the bus comes with an initial delay before any transaction can be made, low values for the PCI Latency Timer will reduce the effectiveness of the PCI bandwidth while higher values will improve it.



Plug & Play O/S

- Yes
- Configures Plug and Play (PnP) devices that are not required to boot in a Plug and Play supported operating system.
- No
- The BIOS configures all the devices in the system.

Boot



Boot Settings Configuration

This section is used to configure settings during system boot.

Boot Device Priority

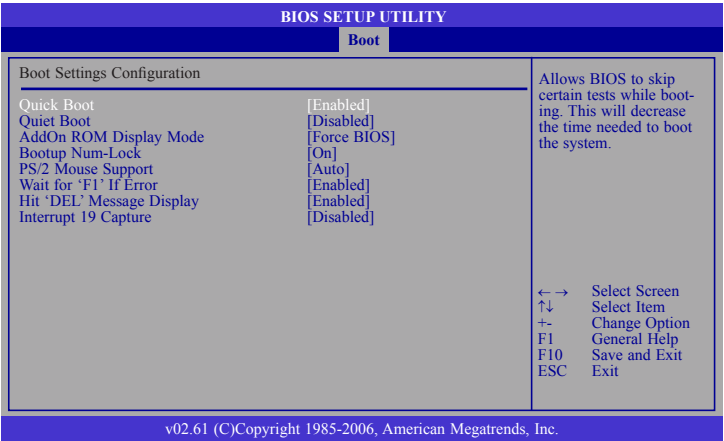
This section is used to select the boot priority sequence of the devices.

Hard Disk Drives

This section is used to select the boot priority sequence of the hard disk drives.

Boot Settings Configuration

This section is used to configure settings during system boot.



Quick Boot

When Enabled, the BIOS will shorten or skip some check items during POST. This will decrease the time needed to boot the system.

Quiet Boot

Enabled      Displays OEM logo instead of the POST messages.  
Disabled     Displays normal POST messages.

AddOn ROM Display Mode

Selects the display mode of the optional ROM.

Bootup Num-Lock

This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

PS/2 Mouse Support

The options are Auto, Enabled and Disabled.

Wait for 'F1' If Error

When enabled, the system will wait for the <F1> key to be pressed when an error occurs.

Hit 'DEL' Message Display

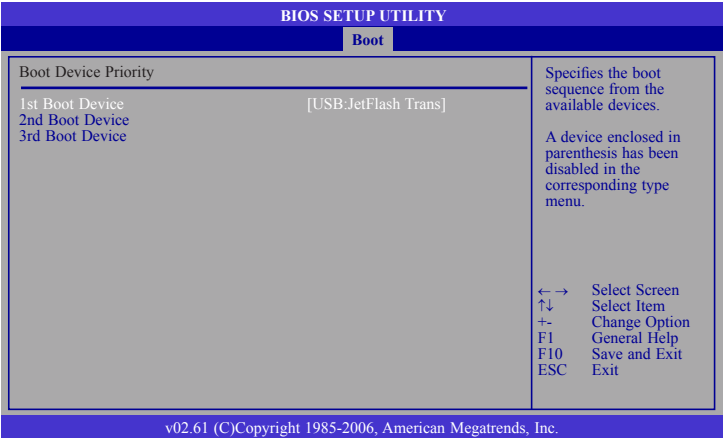
When enabled, the system displays the "Press DEL to run Setup" message during POST.

Interrupt 19 Capture

When enabled, it allows the optional ROM to trap interrupt 19.

Boot Device Priority

This section is used to select the boot priority sequence of the devices.



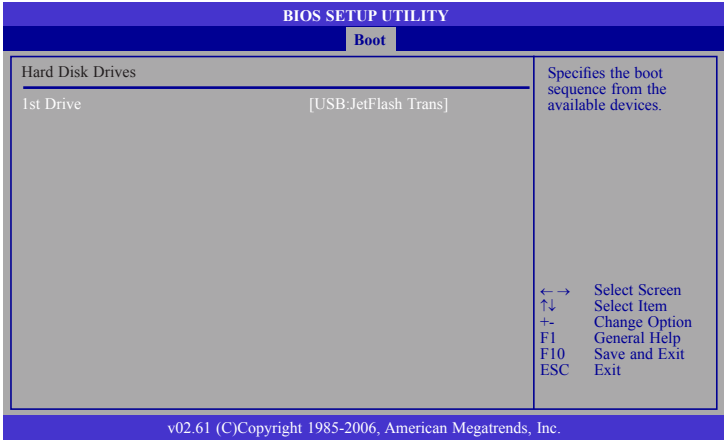
1st Boot Device to 3rd Boot Device

Selects the drive to boot first, second and third in the "1st Boot Device", "2nd Boot Device" and "3rd Boot Device" fields respectively. The BIOS will boot the operating system according to the sequence of the drive selected.



Hard Disk Drives

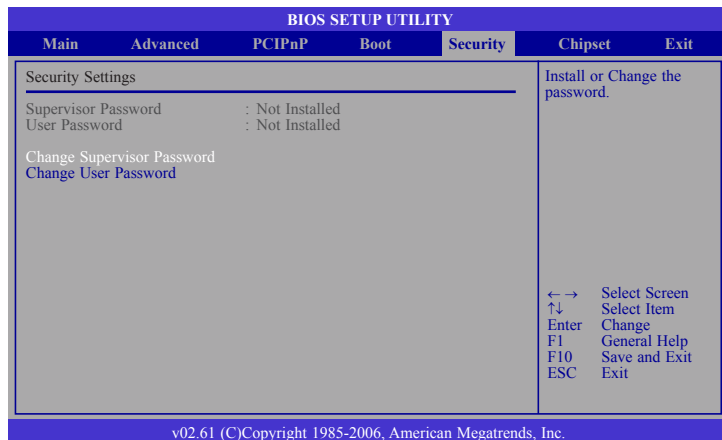
This section is used to select the boot priority sequence of the hard drives.



1st Boot Device to 3rd Boot Device

Selects the drive to boot first, second and third in the "1st Boot Device", "2nd Boot Device" and "3rd Boot Device" fields respectively. The BIOS will boot the operating system according to the sequence of the drive selected.

## Security



### Change Supervisor Password

This field is used to set or change the supervisor password.

To set a new password:

1. Select the Change Supervisor Password field then press <Enter>.
2. Type your password in the dialog box then press <Enter>. You are limited to eight letters/numbers.
3. Press <Enter> to confirm the new password.
4. When the Password Installed dialog box appears, select OK.

To change the password, repeat the same steps above.

To clear the password, select Change Supervisor Password then press <Enter>. The Password Uninstalled dialog box will appear.

If you forgot the password, you can clear the password by erasing the CMOS RTC (Real Time Clock) RAM using the RTC Clear jumper. Refer to chapter 2 for more information.

### Change User Password

This field is used to set or change the user password.


To set a new password:

1. Select the Change User Password field then press <Enter>.
2. Type your password in the dialog box then press <Enter>. You are limited to eight letters/numbers.
3. Press <Enter> to confirm the new password.
4. When the Password Installed dialog box appears, select OK.

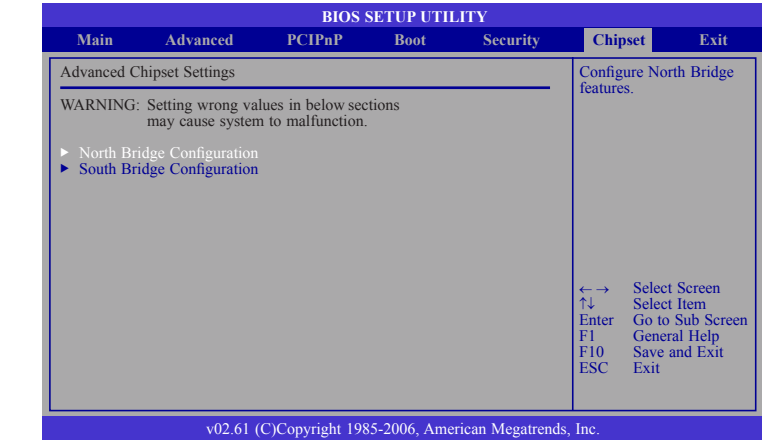
To change the password, repeat the same steps above.

Chipset

This section is used to configure the system based on the specific features of the chipset.

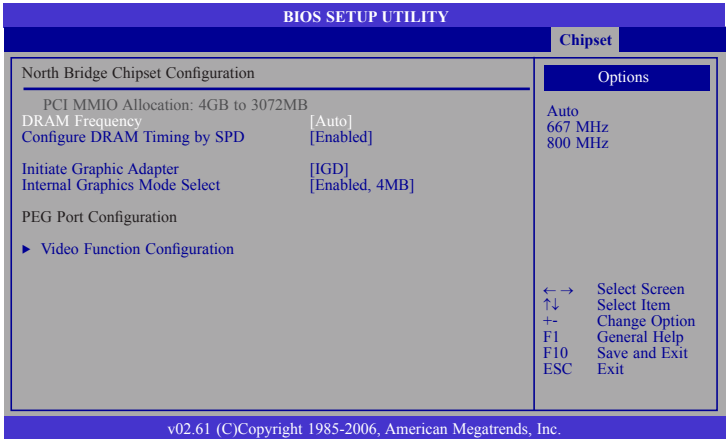


Setting incorrect field values may cause the system to malfunction.



North Bridge Configuration

This section is used to configure the north bridge features.



DRAM Frequency

Selects the frequency of the DRAM.

Configure DRAM Timing by SPD

The EEPROM on a PC SDRAM DIMM that has SPD (Serial Presence Detect) data structure stores information about the module such as the memory type, memory size, memory speed, etc. When this field is enabled, the system will run according to the information in the EEPROM.

Initiate Graphic Adapter

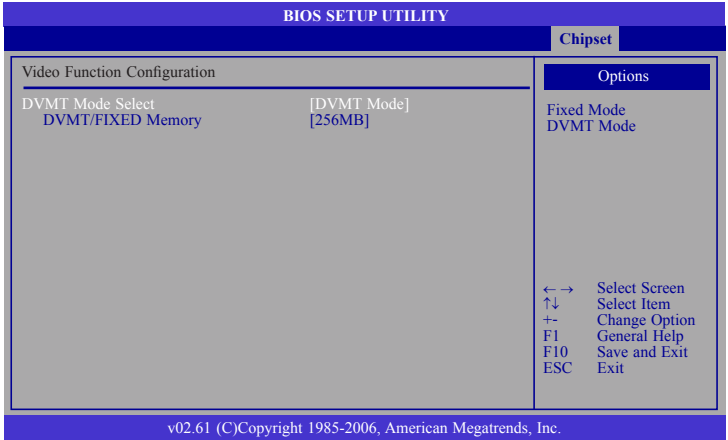
Selects the graphics controller to use as the primary boot device.

Internal Graphics Mode Select

Selects the amount of system memory used by the internal graphics device.

Video Function Configuration

This section is used to configure the north bridge features.



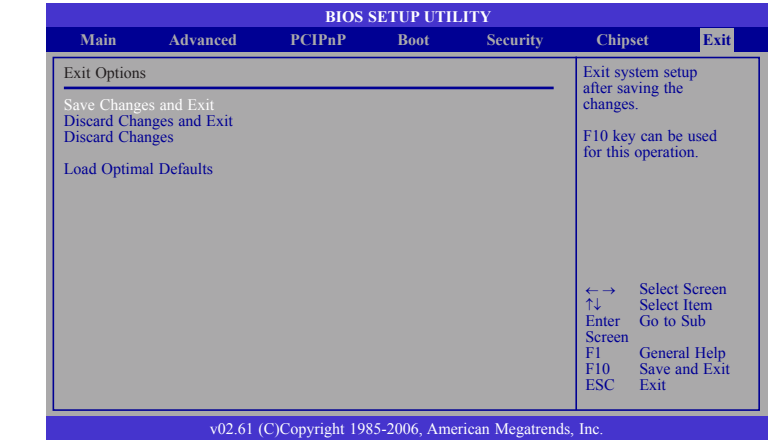
DVMT Mode Select

The options are Fixed mode and DVMT mode.

DVMT/Fixed Memory

This field is used to select the graphics memory size used by DVMT/Fixed mode.

Exit



Save Changes and Exit

To save the changes and exit the Setup utility, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes. You can also press <F10> to save and exit Setup.

Discard Changes and Exit

To exit the Setup utility without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting. You can also press <ESC> to exit without saving the changes.

Discard Changes

To discard the changes, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes to discard all changes made and restore the previously saved settings.

Load Optimal Defaults

Loads the optimal default values from the BIOS ROM.



# APPENDIX A: WATCHDOG TIMER

## Watchdog Timer Setting

DNA 1110 features a watchdog timer that resets the CPU or generates an interrupt if the processor stops operating for any reason. This feature ensures system reliability in industrial standalone or unmanned environments.

### CRF6 (Default 0x00)

#### Watchdog Timer Time-out Value

Writing a non-zero value to this register causes the counter to load the value to Watchdog Counter and start counting down. If Bit 7 and Bit 6 are set, any Mouse Interrupt or Keyboard Interrupt event will also cause the reload of previously-loaded non-zero value to Watchdog Counter and start counting down. Reading this register returns current value in Watchdog Counter instead of the Watchdog timer time-out value.

#### Watchdog Timer Time-out Value

BITS	Definition
7-0	0x00 time-out disabled 0x01 time-out occurs after 1sec./min. 0x02 time-out occurs after 2 sec./min. 0x03 time-out occurs after 3 sec./min. • • 0xFF time-out occurs after 255 sec./min.



## Watch Dog Sample Code

```
#####
;ENTER THE SIO CONFIGURATION MODE
#####
```

```
#####
```

```
MOV    DX, 2EH
MOV    AL, 87H
OUT    DX, AL
OUT    DX, AL
```

```
MOV    AL, 07H      ;POINT TO LOGICAL DEVICE NUMBER REG
OUT    DX, AL
INC    DX
MOV    AL, 08H
OUT    DX, AL
```

```
#####
;SET UNITS
#####
```

```
#####
```

```
MOV    DX, 2EH
MOV    AL, 0F5H
OUT    DX, AL
INC    DX
IN     AL, DX
AND    AL, NOT 8    ;SECEND MODE.
OUT    DX, AL
```

```
#####
;SET TIME OUT VALUE
#####
```

```
#####
```

```
MOV    DX, 2EH
```

```
MOV    AL, 0F6H
OUT    DX, AL
MOV    AL, NUMBER OF TIME OUT VALUE IN SECENDS (0-255)
INC    DX
OUT    DX, AL
```

```
#####
;EXIT THE SIO CONFIGURATION MODE
#####
```

```
#####
```

```
MOV    DX, 2EH
MOV    AL, 0AAH
OUT    DX, AL
```

## APPENDIX B: BYPASS SPECIFICATIONS

DNA 1110 provides LAN bypass functionality to ensure that data can still pass through the device, even when it is powered off. This feature helps ensure the continuous flow of data through the device in the event of a hardware failure. For network security appliances deployed at the gateway, for example, it is crucial that they provide LAN bypass functionality to ensure that hardware failure on these appliances will not bring down the entire network.

### Bypass Control Register Map

#### BTCCR - Bypass Timer Configuration Register = 0XF2

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
R	X	X	X	X	RW	RW	RW
Timer expired	Not used	Not used	Not used	Not used	Global timeout value		

#### BCSR - Bypass Control Status Register = 0XF3

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
W		X	X	X	X	X	W
Bypass mode		Not used	Not used	Not used	Not used	Not used	Segment 1



## Bypass Control Register Bit Definitions

### Bypass Timer Configuration Register

Bit Field	Name	Value
2:0	Timer value	<p>000 = 0 second, timer immediately expired            001 = 1 second            010 = 2 seconds            011 = 4 seconds            100 = 8 seconds            101 = 16 seconds            110 = 32 seconds            111 = 64 seconds</p> <p>Note: This is a write only field.            Upon reads these bit values are undefined.            A Timer value of 1 to 7 is required to be written before expiration of the hardware timer. When the timer expires, all segments which have been enabled in bits 2:0 of Power ON state Bypass Control Status Register set relays closed to form bypass segments. It is the responsibility of the software to keep track of the time to ensure writes to this register occur no greater than <math>\text{TimerValueInSeconds} / 2</math>. A write of the timer value will automatically reset the expiration timer and set it to the value expressed in bit 2:0.</p>

Bit Field	Name	Value
3	Not used	No activity taken if written, value is undetermined and not needed on read operation.
4	Not used	No activity taken if written, value is undetermined and not needed on read operation.
5	Not used	No activity taken if written, value is undetermined and not needed on read operation.
6	Not used	No activity taken if written, value is undetermined and not needed on read operation.
7	Timer expired	<p>Read only bit:            0 = Timer has not expired            1 = Timer has expired</p> <p>Note: A read operation on Bypass Timer Configuration Register should not cause the timer value to refresh.</p>

### Bypass Control Status Register (Segment 1 only)

Bit Field	Name	Value
0	Segment 1	Segment control bit mask. <u>Write:</u> If a segment mask bit is set to false (0), no action on that segment will take place. If a segment mask bit has been set to true (1), action will take place on this segment according to the bypass mode settings in bits 7:6.
1	Not used	No activity taken if written, value is undetermined and not needed on read operation.
2	Not used	No activity taken if written, value is undetermined and not needed on read operation.
3	Not used	No activity taken if written, value is undetermined and not needed on read operation.
4	Not used	No activity taken if written, value is undetermined and not needed on read operation.
5	Not used	No activity taken if written, value is undetermined and not needed on read operation.
7:6	Bypass mode	These two bits defined the bypass mode for one or more segments. These bits are Write only and on reads returns undetermined values which will be ignored by the driver.

### Bypass Mode Table

Bit 7	Bit 6	Action
0	0	Ignore, no action taken.
0	1	Force Enable - Engage bypass relays on segments enabled in segment mask.
1	0	Force Disable - Disable bypass relays immediately on segments enabled in mask.
1	1	Timer Enable - Segments enabled in mask are under Timer control.